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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,301	09/16/2003	Donna Jean Crowther	2002U023.US	4331

7590 04/25/2005
Univation Technologies, LLC
Suite 1950
5555 San Felipe
Houston, TX 77056

EXAMINER

LU, C CAIXIA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/664,301

Applicant(s)

CROWTHER ET AL.

Examiner

Caixia Lu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 20-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-46 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/16/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-19, drawn to a process of making catalyst composition, classified in class 502, subclass 104.
 - II. Claims 20-39, drawn to a process of polymerization, classified in class 526, subclass 114.
 - III. Claims 40-46, drawn to a bimodal polyethylene, classified in class 526, subclass 348.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and process of using the product. The use as claimed cannot be practiced with a materially different product. Since the product is not allowable, restriction is proper between said method of making and method of using. The product claim will be examined along with the elected invention (MPEP § 806.05(i)).
3. Inventions II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the bimodal polyethylene can be prepared by a different catalyst composition wherein different metallocene complexes are used.

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4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for one of the groups is not required for required by the rest of the groups, restriction for examination purposes as indicated is proper.

6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

7. During a telephone conversation with Attorney Kevin Faulkner on April 20, 2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-9. Affirmation of this election must be made by applicant in replying to this Office action. Claims 20-46 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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10. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, (i) the abbreviation "MFR" is not defined; and (ii) the unit of "MFR of 50" should be specified.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewen et al. (US 4,530,914) in view of Reddy et al. (US 5,648,428) and Miya et al. (US 4,931,417).

Ewen teaches the preparation of catalyst compositions comprising two or more metallocenes each having different propagation and termination rate for making for providing an ethylene polymers with bimodal or multimodal molecular weight distributions by mixing the aluminoxane activator and two metallocene complexes sequentially (col. 2, lines 25-45, col. 4, lines 20-46, and col. 7, Example 1). Ewen further teaches that the catalyst can be supported on carriers such as silica to provide good particle properties for slurry or gas phase polymerization (col. 6, lines 17-22).

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However, Ewen does not expressly teach addition of the diluent of mineral or silicon oil to the catalyst composition.

Reddy teaches catalyst composition comprising a metallocene catalyst and a Ziegler catalyst, wherein the metallocene catalyst is prepared by mixing aluminoxane and zirconocene complex to provide solid catalyst particulates and then suspending the catalyst solid particulates in mineral oil (col. 5, lines 7-40). The purpose of suspending the catalyst composition in a diluent such as mineral oil is for easy catalyst handling and minimizing the catalyst from contacting with the air directly and being poisoned.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Reddy's teaching to Ewen's catalyst preparation process by supporting the aluminoxane and the metallocene complex on the carrier such as silica to provide a catalyst particulate composition and suspending the catalyst particulates in mineral oil to provide the first catalyst slurry and then combining the first catalyst slurry with the second activated metallocene catalyst to provide a catalyst composition slurry containing two metallocene catalysts which is easy to handle with improved antifouling during the polymerization and in the absence of any showing criticality and unexpected results.

It is also noted that Miya does not particularly teach a cyclic bridged metallocene which is capable of producing polyethylene with MFR of 50 or more. Cyclic bridged metallocene such as (cyclotetramethylenesilyl)(cyclopentadienyl))(methyl-cyclopentadienyl) zirconium dichloride is demonstrated in Miya's Example 15 for providing polypropylene with very low molecular weight of 4,200. One would have

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expected this type of metallocene catalyst would provide an ethylene polymer with very low molecular weight as well. When an olefin polymer's molecular weight is in the range of thousands, the MFR is expected to be at least 50.

Therefore, it would have been obvious to prepare a catalyst composition containing two metallocene catalyst by combining Miya's cyclic bridged metallocene for producing the low molecular weight ethylene polymer fraction and a bridged metallocene catalyst for producing the high molecular weight ethylene polymer fraction since such is within the scope of Ewen's teaching and in the absence showing of any criticality and unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.



Caixia Lu, Ph. D.
Primary Examiner
April 20, 2005